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10/007,154	12/04/2001	Glenn A. Dearth	2442/105	4263

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Myerton Hood Kinlin Kowert & Goetzel P C
P O Box 398
Austin, TX 78767-0398

EXAMINER	
GOSSAGE, GLENN A	

ART UNIT	PAPER NUMBER
2187	9

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/007,154	Applicant(s) DEARTH ET AL.	
	Examiner Glenn Gossage	Art Unit 2187	

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 24-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 24-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. A new title such as -- SYSTEM FOR ACCESSING A REGION OF MEMORY USING REMOTE ADDRESS TRANSLATION AND USING A MEMORY WINDOW TABLE AND A MEMORY REGION TABLE-- is suggested (see claim 1, lines 1-3 and 6, and claim 24, lines 1-2, e.g.). The loss in brevity of title is more than offset by the gain in its informative value in indexing, classifying, searching, etc. See MPEP 606 and 606.01.

2. The abstract of the disclosure is objected to because it does not enable one to quickly determine from a cursory inspection the nature and gist of the technical disclosure as required by 37 CFR 1.72(b). It appears one or two sentences should be added describing additionally claimed and disclosed features. [For example, in line 4, after "system." insert one or two sentences such as --The system may include a memory region table for supporting memory region translations and a memory window table. The memory window table may include a field for recording a memory region entry and a field for recording a memory window entry, and may also include fields for a region remote access key and a window remote access key. The memory region table may include fields for a physical address, an access value, a protection domain value and a length of the memory region. -- . See claims 1-5, e.g.]

Appropriate correction is required. See MPEP ∋ 608.01(b).

3. The drawings are objected to because in Figure 1, it appears "Consoles" should be --Console-- (see page 6, line 11, e.g.). Also, it appears "IB" should be --Infiniband (IB)-- for clarity.

In Figure 2, it appears --Memory-- should be inserted after "chip" for consistency (see page 8, lines 5-7, e.g.). Also, it appears "In Comming" should be --Incoming--. The label "4K" within the table entry 209 is not entirely understood (described in the specification?). Should a label such as --SIZE-- be used? Note claim 4, line 8, for example.

In Figure 3, the label "??" within record 301 is confusing. The labels "14.0B" and "17.5B" are also confusing and should be deleted or further explained in the specification. The\labels 12b are also not entirely understood here.

In Figure 8, the labels "16.0B" are confusing analogous to Figure 3 and should be deleted or further explained in the specification. The label 10b is also not entirely understood here.

In Figure 9, within step 909, it appears "amd" should be --and--.

Applicant is REQUIRED to submit a proposed drawing correction in response to this Office action. However, actual formal correction of the noted defect(s) (submission of corrected formal drawings, e.g.) can be deferred until the application is allowed by the examiner.

Also note MPEP 608.02(r) and (v).

4. The disclosure has not been checked by the Examiner to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the disclosure. The following objections are specifically noted:

In the specification:

On page 1, lines 5, 6 and 10, it appears "system" should be changed to --storage-- for consistency with the acronym "SAN" as commonly used in the art. See also page 5, line 10.

On page 2, lines 2 and 3, and throughout the specification, all trademarks and trade names, and their respective owners, should be properly identified. See MPEP 608.01(v).

Also on page 2, line 6, and throughout the specification, the first occurrence of all acronyms or abbreviations should be written out for clarity, whether or not they may be considered "well known." Accordingly, "IO" should be --input/output (I/O)-- for clarity.

On page 6, line 12, it appears "routers" should be --a router-- for consistency (see Figure 1). In line 13, it appears --(WANs)-- and --(LANs)-- should be inserted after "networks" (second and third occurrences, respectively). In line 14, it appears --or hosts-- should be inserted after "nodes." In line 17, it appears --or central processing units (CPUs)-- should be inserted after "computers" for consistency (see Figure 1). In line 18, it appears --(HCAs)-- should be inserted after "adaptors" for clarity. In line 22, it appears --(DMA)-- should be inserted after "access." In line 30, it appears "computer" should be --computers--.

On page 8, line 6, it appears --or TPT-- should be inserted after "table" for clarity.

On page 11, line 14, the wording "find 502" is unclear and confusing, particularly when read in conjunction with Figure 5. It appears "find 502" should be changed to --perform a process 502 to find-- for clarity. Similarly, in lines 22 and 27, it appears --in process-- should be inserted before "504" and "506," respectively, for clarity and consistency (see lines 20-21 and 26, e.g.).

On page 12, line 1, it appears "returns 507" should be --507 returns-- for clarity. In lines 14, 16 and 18, it appears "602 (603, 604)" should be -- , in process 602 (603, 604)--, for clarity. In line 27, it is not entirely clear to what the "verbs" of the Infiniband architecture refer.

On page 13, line 12, it appears "of" should be deleted. In lines 14 and 16, it appears "is" should be --are--. In lines 15 and 16, it appears --and length-- should be inserted after "address" for clarity and consistency (see lines 13-14, e.g.). In line 17, it appears "entry then" should be --entry, then--, and --(Fig. 2)-- inserted after "table" for clarity. In lines 19 and 22, "706 (707)" should be --in process 706 (707)-- for clarity. In line 24, "assume" should be --assumes--. In line 28, --(Fig. 3)-- should be inserted after "302" for clarity.

On page 14, line 9, "an" should be --and--. In line 11, "implements" should be --implemented--. In line 12, it appears "compliment" should be --complement-- for clarity.

On page 15, it appears --in process-- should be inserted before the reference numerals in lines 17 (two occurrences), 18, 26, 30 and 31. See also page 16, lines 2,

4, 5 and 17. Also on page 15, line 18, it is not clear whether "902" should be --903--. In line 29, it appears "is" should be --are--.

On page 16, line 15, it appears --of-- should be inserted after "value" for clarity and consistency (see line 16, e.g.).

Again note that these are merely exemplary. The entire specification should be carefully and completely reviewed to ensure that all possible errors are located and corrected.

Appropriate correction is required.

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-7 and 24-33 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. More specifically, claims 1-7 and 24-33 merely set forth data (albeit in a table) which is not a statutory class of invention. The claims do not define any structural and functional relationships between the data structures and the other elements of the computer to permit the data's functionalized to be realized. In this regard, see MPEP 2106.

6. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The elements of the "system" necessary "for accessing a region of memory in a computer" and which are critical or essential to the practice of the invention, i.e. to but not included in the claim(s), are not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The claimed "system" merely comprises data (albeit in tables) and fails to set forth elements critical or essential to the practice of the invention, i.e. a "system" merely comprising data is not enabled to access a region of memory in a computer as claimed.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-7 and 24-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Beukema et al (U.S. 6,601,148).

With respect to claim 1, Beukema et al (U.S. 6,601,148) discloses a system for accessing a region of memory in a computer, the system including a memory region table for supporting memory region translations (see memory region protection table 1000 in Figure 10, e.g.) and a memory window table being in communication with the memory region table (see memory window tables 800 and 900 in Figures 8 and 9, e.g.), the memory region table and memory window table residing on a module external to and in communication with an operating system (Beukema et al discloses that the table and software may be external to the operating system kernel and may also reside on computer readable media. See column 1, lines 37-63 and column 10, lines 19-36, e.g.).

Beukema et al discloses that the use of the memory region and memory window tables allows the access rights or privileges to be changed dynamically without intervention by the kernel (again see column 1, lines 37-63, as well as column 6, line 54 to column 7, line 26; column 7, line 47 to column 8, line 16.

With respect to claim 2, as well as claim 24, Beukema et al discloses that the memory window table may include a field for recording a memory region entry (Beukema et al teaches storing a key for a memory region) and a field for recording a memory window entry (Beukema et al teaches storing various memory window entries (see Figure 9).

With respect to claim 3, the memory region table virtually resides in the operating system of the computer (note the virtual address 1001 in Figure 10, e.g.).

With respect to claim 4, Beukema et al discloses that the memory region table may store a field for recording a physical address corresponding to a first memory location of a memory region (a virtual address and a pointer to an address translation table are stored and thus a physical address may be considered to be stored, at least indirectly. Also see column 9, lines 46-49 and 50-67.), a field for recording an access value corresponding to the memory region (see field 1004 in Figure 10, e.g.), a field for recording a protection domain value corresponding to the memory region (see field 1003 in Figure 10, e.g.), and a field for recording a length of the memory region (see field 1002 in Figure 10, e.g.).

With respect to claim 5, Beukema et al discloses that the memory window table may also further comprise a field for recording a region remote access key (see keys 802, 906 and 1005 in Figures 8-10, respectively, e.g.) for accessing a memory region and a field for recording a window remote access key corresponding to the memory window (see field 904 in Figure 9, e.g.). Also see column 8, lines 12-16 and 25-30 and column 7, lines 20-26.

With respect to claim 6, Beukema et al discloses that the memory window table may also further comprise a field for recording a virtual address corresponding to a first memory location within a memory window (see field 901 in Figure 9), a field for recording a length of the memory window (see field 902 in Figure 9), and a field for recording an "access value" corresponding to the memory window (see field 805 in Figure 8, e.g.).

With respect to claim 7, Beukema et al discloses that the memory window table further comprises a field for recording a protection domain value corresponding to the memory window (see field 903 in Figure 9, e.g.).

With respect to claim 24, Beukema et al discloses that the memory window table may include a "field" for recording a memory window "record" (see fields 801, 803 and 804 in Figure 8 and fields 901-905 in Figure 9, e.g.) and a field for recording a memory region record (see fields 802 and 906 in Figures 8 and 9, e.g.).

With respect to claim 25, Beukema et al discloses that the memory window record includes a protection domain value for the memory window (see field 903 in Figure 9, e.g.).

With respect to claim 26, Beukema et al discloses that the memory window record may include a virtual address corresponding to the first location of the memory window (see field 901 in Figure 9, e.g.) .

With respect to claim 27, Beukema et al discloses that the memory window record includes a length corresponding to the length of the memory window (see field 902 in Figure 9, e.g.).

With respect to claim 28, Beukema et al discloses that the memory window record includes a region key for accessing a memory region (see fields 802 and 906 in Figures 8 and 9, e.g.).

With respect to claim 29, Beukema et al discloses that the memory window record may include a window key for accessing a memory window (see field 905 in Figure 9, e.g.).

With respect to claim 30, Beukema et al discloses that the memory region record may also include a protection domain value for the memory region ((see field 1003 in Figure 10, e.g.).

With respect to claim 31, Beukema et al discloses that the memory region record includes a virtual address corresponding to the first location of the memory region (see field 1001 in Figure 10, e.g.).

With respect to claim 32, Beukema et al discloses that the memory region record may include a length corresponding to the length of the memory region (see field 1002 in Figure 10, e.g.).

With respect to claim 33, one of ordinary skill in the art would recognize that the length of the memory window record may be equal to the length of the memory region record (in this regard, note column 7, line 66 to column 8, line 6).

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Biran et al is cited as disclosing a method and apparatus using remote address translation for an Infiniband network including the use of a memory window table similar to the present invention.

Beukema et al (U.S. '339), Beukema et al (U.S. '4148), Beukema et al (U.S. '217), Beukema et al (U.S. '122) and Beukema et al (U.S. '117) are all cited as disclosing methods and apparatuses for managing and associating memory windows in an

Infiniband environment using memory window and memory region tables similar to the present invention.

Craddock et al is cited as disclosing an apparatus and method for controlling memory access using address translation and memory protection tables (see Figure 12, e.g.).

Parthasarathy et al is cited as disclosing a system using memory windows and a method for remote key validation.

Berry is cited as disclosing a network including a translation and protection table.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Gossage whose telephone number is (703) 305-3820.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (703) 308-1756.

The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

(703) 746-7238 (After Final Communications)
(703) 746-7239 (Official Communications)

(703) 746-5713 (Use this FAX number only after approval by the Examiner, for INFORMAL or DRAFT communications.)

GLENN GOSSAGE
PRIMARY EXAMINER
ART UNIT 2187